DESCRIPTIONS AND ILLUSTRATIONS OF GENERA OF SHELLS.

BY T. A. CONRAD.

CRASSATELLA, Lam.

Subgenus PACHYTHÆRUS.

C. Pteropsis, Conrad, Pl. I., fig. 1. Cretaceous.

C. Ripleyana, Conrad, fig. 7. Cretaceous.

C. ligeriensis, D'Orb. fig. 10. Cretaceous.

I do not suppose this group of Cretaceous, Eocene, and Oligocene shells will be recognized as a genus distinct from CRASSATELLA, and therefore I propose it as a subgenus to mark the differences which characterize the species of Cretaceous and older tertiary formations, and distinguish them from Miocene and recent forms.

For description of the subgenus, see Amer. Journ. of Conch., vol. v. p. 47.

CRASSATELLA.

Miocene and recent.

C. undulata, Say, Plate I., fig. 9.

PLEUROCONCHA.

Shell radiately ribbed, hinge of right valve with 2 cardinal teeth, posterior one immediately under the apex, triangular, thick, and directed obliquely posteriorly, anterior tooth approximately direct, no cartilage pit as in Crassatella.

Crassatella Gallieni, D'Orbigny.

I originally proposed this genus under the objectionable name of RADIOCONCHA, and as it has not been accepted I feel at liberty to alter the orthography though not the meaning of the name.

In an attempt at a natural classification of bivalves it would be wrong to include this shell in the genus CRASSATELLA, as the above diagnosis must render evident to any one who studies the subject.

In indicating the genus an error occurred in quoting the name of *Guerangeri*, instead of *Gallieni* as I intended. It seems hardly possible that any one could suppose that I would quote the ASTARTE figured on the same plate as the type of the genus. Had I done so it would have been quoted ASTARTE, not CRASSATELLA. *C. Robinaldini* was incorrectly referred to this genus.

PTYCHOMYA, Ag., is described as having 3 diverging cardinal

teeth in each valve, which with other characters show a wide generic difference between it and PLEUROCONCHA.

PLIONEMA, Conrad.

Shell subrotund, sculptured with close radiating lines or fine ribs; hinge of left valve with 2 robust diverging teeth; lunule none.

Astarte Guerangeri, D'Orbigny.

The radiating ribs and lunule are I think sufficient to distinguish this as a subgenus. When it is considered that all the numerous species, Cretaceous and recent, of the genus ASTARTE or CRASSINA are characterized by a well-marked and generally profound lunule, and when ribbed, always concentrically, the *Astarte Guerangeri* forms too marked an exception to place it in the group of typical species.

SCAMBULA.

Shell triangular, compressed; in the right valve one direct tooth under the apex, with a pit on each side of it, and a long lateral tooth anteriorly, posterior dorsal margin carinated, which prominent line fits into a doubled lateral tooth, in the opposite valve, left valve with 2 long approximate direct teeth, and a long anterior marginal lateral tooth, pallial line invisible, inner margin finely crenulated on a raised line.

S. perplana, Conrad, Pl. I., fig. 2

The crenulations on the shell closely resemble those of PACHYTHÆRUS (Cretaceous forms of CRASSATELLA), being arranged in a slightly prominent line. The hinge of this shell is very distinct from that of CRASSATELLA.

PTEROMERIS.

Shell triangular, compressed, radiately ribbed, not oblique; hinge of left valve with 2 diverging cardinal teeth, the anterior one slightly grooved; the posterior one elongated, profoundly bifid; posterior hinge margin carinated.

P. perplana, Pl. I., fig. 3.

This genus was indicated in the Proceedings of the Academy of Natural Sciences in 1862. It was not founded on *Astarte minutissima* as stated by Stoliczka, but on *Cardita perplana* a Miocene shell. MICROMERIS was proposed for the former, which from

Lea's description and figure must be sufficiently distinct in generic character.

In the Eocene catalogue published in the American Journal of Conchology, *Astarte minutissima* was incorrectly referred to PTEROMERIS. This shell, and *Cardita atomus*, Deshayes, look much alike externally.

VETERICARDIA.

This genus was improperly printed *Vetocardia.* and I here restore the correct orthography.

V. crenalirata, Pl. I., fig. 4.
Venericardia dupiniana, from D'Orbigny, fig. 11.

Stoliczka has figured a shell under the name of *Cardita Jaguenoti* which has more external resemblance to VENERICARDIA than any cretaceous form known to me, but the hinge is different from that of CARDITA or VENERICARDIA, and also from that of the present genus.

PLEUROMERIS.

P. tridentata (Cardita), Say.

May be regarded as the type of this genus, which was described in the Amer. Journ. of Conch., vol. III., p. 12.

P. decemcostata, Pl. I., fig. 8

This is a Miocene species in which formation most of the species are found, though the genus first appeared in the Eocene. I refer to this genus *Cardita Kickxii*, *C. chamæformis*, Sowerby, *C. scalaris*, *C. analis*, Phil.

EULOXA.

Equivalved; hinge of right valve having a long oblique bifid tooth immediately under the apex, and one pyramidal thick distant tooth anteriorly, left valve with 3 distant cardinal teeth, one under the apex oblique thick entire, posterior tooth slender and very oblique, anterior tooth small, pallial line with a slight sinus; inner margin entire.

E. latisulcata, Pl. I., fig. 5. Proceed. Acad. Nat. Sciences, vol. xiv. p. 585.

This genus essentially differs from CRASSINA in the thick anterior tooth of the right valve; in having 3 teeth in the left valve, and in having a dental pit in the right valve where CRASSINA has

a prominent tooth, and in having a pallial sinus. I know of one species only, *E. latisulcata*, a Miocene fossil.

ALVEINUS.

Shell equivalved, smooth; hinge of both valves with a central pit or emargination; right valve with 2 approximate tuberculiform minute teeth, the first immediately under the apex and the other beneath and a little in advance of it; a lanceolate furrow in front of it; left valve with 2 tuberculiform teeth situated in respect to each other in a line with the anterior hinge margin; a submarginal channel runs entirely round the valves to the apex; pallial line entire?

A. minutus, Conrad, Pl. I., fig. 6. Amer. Journ. Conch., vol. i. p. 138, Pl. X., fig, 2.

A minute shell of the Oligocene period found at Enterprise, Miss. The exterior has much resemblance to that of a ventricose *Dosinia*. The channel around the submargin of the entire shell is, I believe, an unique character. The figure is greatly enlarged. We have but two specimens of this little bivalve, which is extremely thin in substance.

PARASTARTE.

Comparing this minute shell with *Goodallia triangularis*, the hinge is found to correspond with that of the latter, and therefore *P. triquetra*, Conrad, (Proceed. Acad. Nat. Sciences, 1862) must be named *Goodallia triquetra.*

LATIARCA.

Shell triangular, thick, capacious; hinge line narrow medially, broad at the ends; cardinal plates elevated strongly and rugosely striated transversely, the larger plates descending; medial plates very irregular; lower margin of posterior cicatrix elevated and acute, area between the beaks with conspicuous grooves angulated under the beaks.

Latiarca idonea, Conrad, Pl. II., fig. 1. Amer. Journ. Conch., p. 289. Eocene.

The most essential difference between this genus and *Idonearca* is the want of the internal plate, very prominent in the latter, which is also a much shorter shell, with a broader hinge plate.

Cucullæa crassatina, Lam., is a fine example of this genus. Deshayes, Coq. Foss. pl. XXXI., fig. 8, 9.

IDONEARCA.

Shell triangular, thick, ventricose, with radiating lines, hinge broad, medial cardinal plates prominent, linear, transverse, or direct and transversely striated; anterior and posterior plates elongated, oblique or descending, angular at the inner ends and strongly striated transversely, inner plate prominent, curved, cardinal area subequal, grooved.

I. capax. Pl. II., fig. 2. Journ. Acad. Nat. Sci., 2d series, vol. III., p. 328, pl. XXXV., fig. 2.

This genus is one of the most characteristic of the Cretaceous forms, and has the earliest and most developed form of hinge, now represented by the recent *Cucullæa*. Stoliczka confounds with MACRODON, the two very distinct genera of IDONEARCA and GRAMMATODON. The latter is a Jurassic genus unknown in Cretaceous strata.

Having obtained the hinge of a New Jersey bivalve belonging to a group of which *Cucullæa vulgaris*, Morton, is the typical form, I am enabled to subjoin a list of all the species of Idonearca known to me.

AMERICAN.	EUROPEAN.	SYRIAN.
antrosa, *Morton.*	glabra, *Sowerby.*	*brevifrons, Conrad.*
capax, *Conrad.*	disparilis, *D' Orbig.*	*induratus, Conrad.*
Matthewsoni, *Gabb.*	Gabrielis, *D' Orbig.*	*opiformis, Conrad.*
Tippana, *Conrad.*	fibrosa, *D' Orbig.*	*orientalis, Conrad.*
truncata, *Gabb.*	Marciana, *D, Orbig.*	*subrotunda, Conrad.*
	sagittata, *D' Orbig.*	*Syriaca, Conrad.*
	tumida, *D' Orbig.*	
	INDIAN.	
	disparilis, *D' Obigny.*	

TRIGONOARCA.

This genus is eminently characteristic of the Newer Cretaceous series. It has very marked and distinct generic characters, particularly in having teeth like Axinæa and an internal elevated plate like IDONEARCA and CUCULLÆA.

Stoliczka doubts whether this genus should not rather be a subgenus of NOETIA, a very strange reference considering that NOETIA is strongly ribbed, has comparatively fine hinge teeth, no internal plate and reversed beaks, and above all is no older than the Mio-

cene, while TRIGONOARCA disappeared at the close of the Chalk epoch. It combines the characters of AXINÆA and IDONEARCA and connects these with CUCULLÆA.

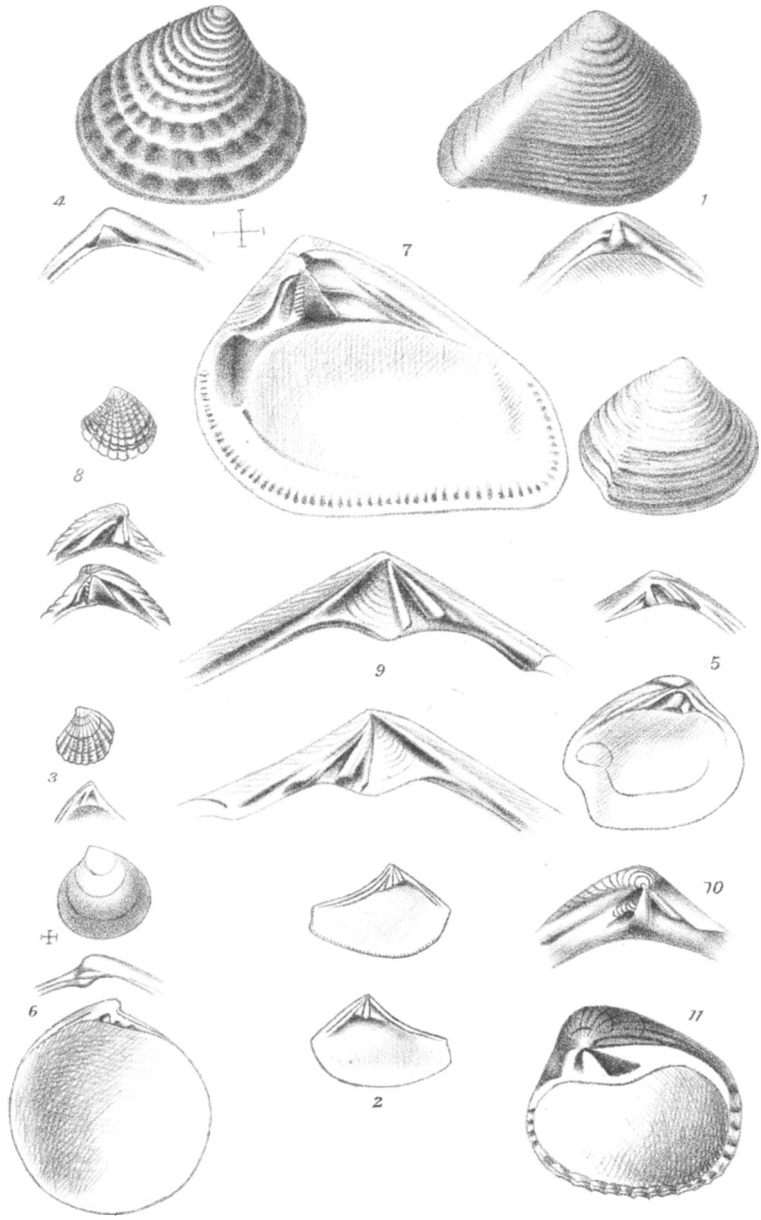
The American species have a very short posterior hinge area, which is rather long anteriorly.

Subgenus BREVIARCA.

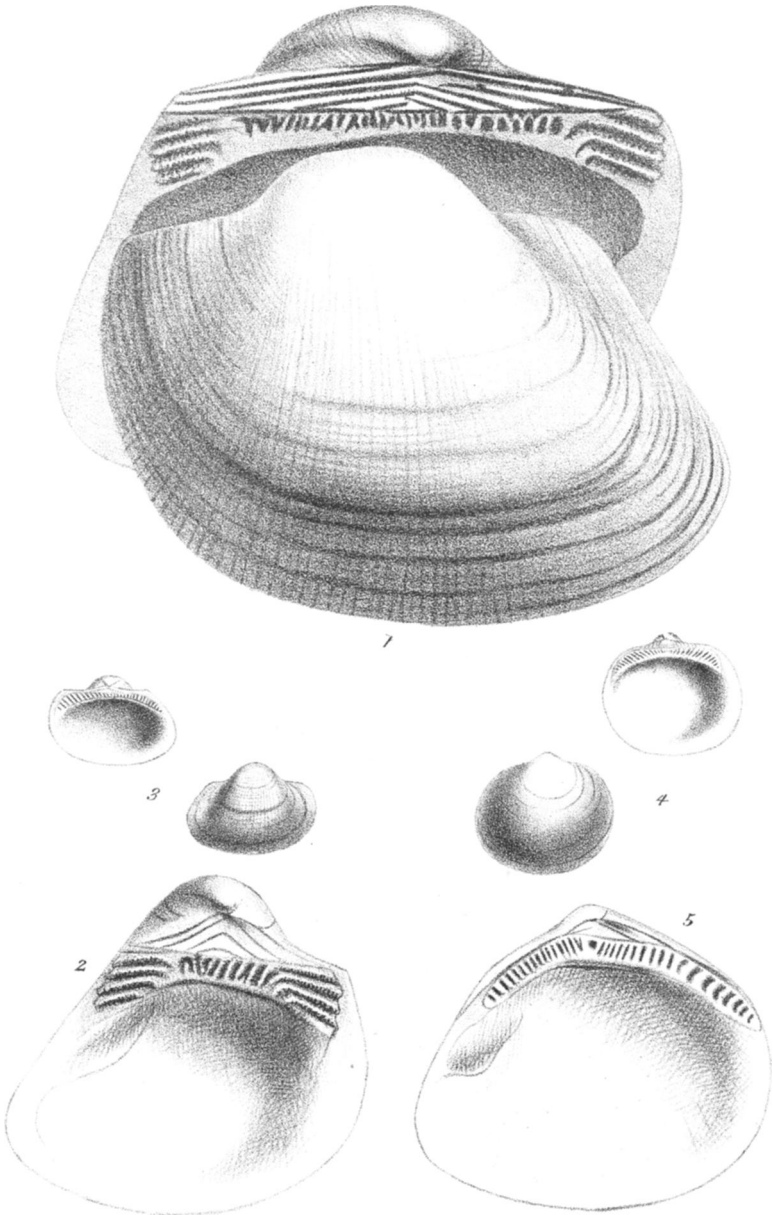
Shell short; hinge area minutely striated across; hinge line descending at the ends; cardinal plates minute, crowded.

T. perovalis, Plate II., fig. 4.

T. Saffordii, Gabb, Plate II., fig. 3.



Conrad, Illustrations of Fossil Genera of Shells.



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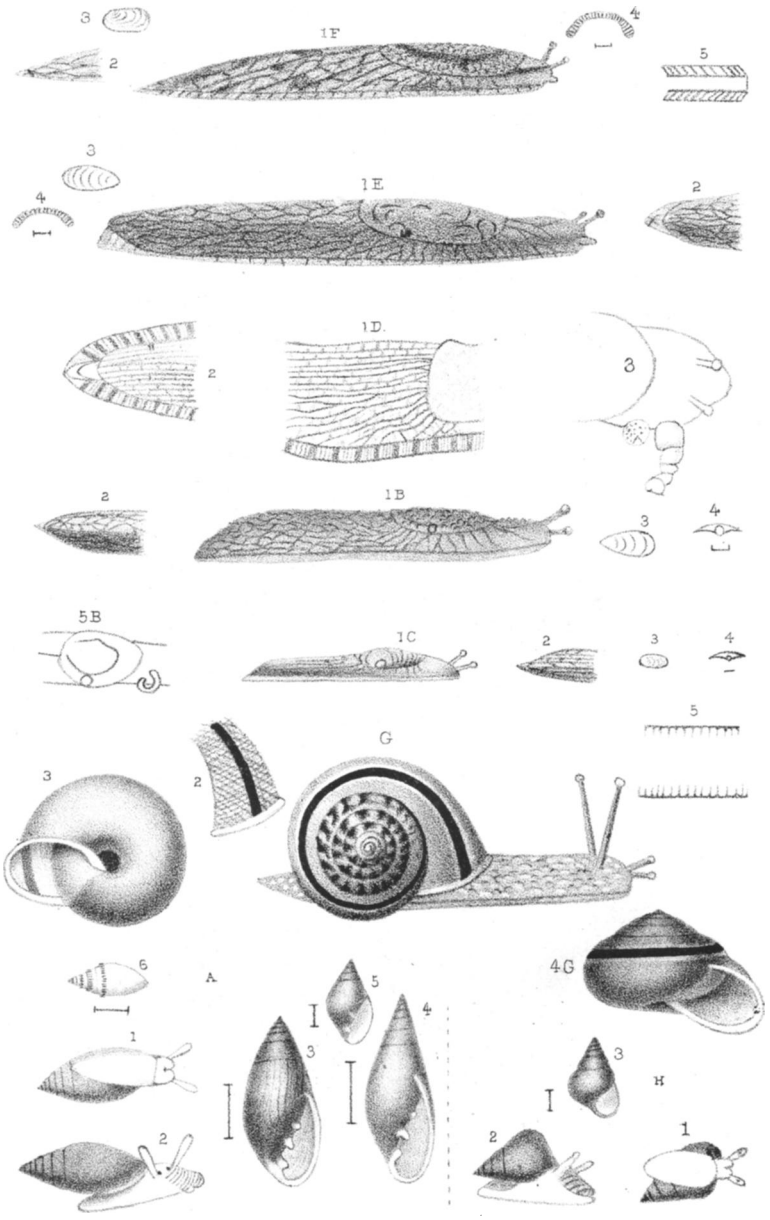

Cooper On New California Mollusca